CLAIMS

1 - 42 (Cancelled)

43. (Currently amended) A method (200) of gain calibration for a transceiver having a transmitter unit and a receiver unit including a measurement unit and including two feed back coupling paths from the transmitter unit to the receiver unit, the method comprising the steps of:

setting (201) a reference signal level of a feedback signal from the transmitter unit by adjusting characteristics of the transmitter unit in response to a ~~the~~ measured signal level;

measuring (203) by the ~~a~~ measurement unit, a measurement reference value associated with the reference signal level when sent via a first feed back coupling path;

measuring, by the ~~a~~ measurement unit, at least one measurement of a signal level transmit on a second feed back coupling path from the transmitter unit via a receiver path;

changing (205) a gain parameter of a transceiver unit of the transceiver by a gain step;

measuring (207), by the measurement unit a gain adjusted feedback signal level of the second feedback coupling path;

determining (209) an effect of the gain step on the feedback signal level relative to said measurement reference value; and

calibrating (211) the gain step according to said relative effect of the gain step on the feedback signal.

44. (Previously presented) A method as claimed in claim 43 wherein the relative effect is determined as a relative change of the at least one measurement with respect to the measurement reference value.

45. (Previously presented) A method as claimed in claim 44 wherein the relative effect is determined as the difference between the at least one measurement and the measurement reference value.

46. (Previously presented) A method as claimed in claim 43 wherein the relative effect is determined as a relative change in the feedback signal level required to achieve a predefined
relationship between the at least one measurement and the measurement reference value.

47. (Previously presented) A method as claimed in claim 46 wherein the predefined relationship is that the at least one measurement is substantially equal to the measurement reference value.

48. (Previously presented) A method as claimed in claim 46 wherein the step of calibrating the gain step comprises determining the gain step as substantially being the same value as the relative effect.

49. (Previously presented) A method as claimed in claim 43, wherein the transmitter comprises a signal generator coupled to the feed back coupling through a transmit path having a transmit path gain and further comprising the step of:

setting a known level at the signal generator;

adjusting the transmit path gain until the measurement unit, when connected to a measurement point through the signal level detector, measures a level equal to the measurement reference value; and

calibrating an absolute value of the transmit path gain as a function of the known signal level and a predetermined relationship between the reference signal level and a measurement value of the measurement unit when connected to the measurement point through the signal level detector.

50. (Previously presented) A method as claimed in claim 43 wherein the receiver comprises a receive path having a receive path gain and further comprising the step of calibrating an absolute value of the receive path gain in response to the measurement reference value and the reference signal level.

51. (Previously presented) A method as claimed in claim 43 wherein the transceiver unit is the transmitter unit having a transmit path having a transmit path gain and the gain step is a gain step of the transmit path gain.

52. (Currently amended) A method as claimed in claim 49 ~~51~~ wherein the transmitter unit comprises a digital signal generator for generating a calibration signal coupled to the measurement point through the transmit path, the transmit path being an analog transmit path.

53. (Previously presented) A method as claimed in claim 52 wherein the gain step is associated with a change of a signal level of the calibration signal and the calibration of the gain step is further in response to the change in the signal level of the calibration signal whereby the feedback signal is maintained within a given dynamic range.

54. (Previously presented) A method as claimed in claim 43 wherein the transceiver unit is the receiver unit having a receive path gain and the gain step is a gain step of the receive path gain.

55. (Currently amended) A method claimed in claim 54 ~~as dependent on any of the claims 46 to 48~~ wherein the transmitter unit comprises a digital signal generator for generating a calibration signal coupled to the measurement path through a transmit path, and the relative change in the feedback signal level required to achieve a predefined relationship between the at least one measurement and the measurement reference value is determined by adjusting an output level of the digital signal generator.

56. (Previously presented) A method as claimed in claim 55 further comprising the step of changing a gain of the transmit path and adjusting the output level of the digital signal generator such that the measurement reference value is measured by the measurement unit.

57. (Previously presented) A method as claimed in claim 43 wherein the feedback signal is a calibration signal of constant amplitude.

58. (Previously presented) A method as claimed in claim 43 wherein the measurement unit is digital and the coupling from the measurement point to the measurement unit through the signal level detector does not comprise any analog signal path of the receiver unit.

59. (Previously presented) A method as claimed in claim 43 wherein the steps of changing the gain parameter, measuring the at least one measurement, determining a relative effect and calibrating the gain step are iterated, whereby calibration across a dynamic gain range is achieved.

60. (Previously presented) A method as claimed in claim 59 wherein the step of determining the relative effect is further in response to the relative effect determined in previous iterations.

61. (Previously presented) A method as claimed in claim 43 wherein the signal level detector has a limited dynamic input range of low distortion, and the reference signal level is set to fall within this dynamic range.

62. (Previously presented) A method as claimed in claim 43 further comprising the step of pre-calibrating a measurement of the measurement unit when measuring the reference signal level through the signal level detector.

63. (Currently Amended) An apparatus (100) for gain calibration for a transceiver having a transmitter unit and a receiver unit having a measurement unit, the apparatus comprising:

two feed back coupling paths from the transmitter unit to the receiver unit;

a level adapter (169) for setting a reference signal level of a ~~the~~ feedback signal from the transmitter unit by adjusting a characteristic of the transmitter unit in response to a measured signal level;

a signal level measurement unit (163) measuring a measurement reference value associated with the reference signal level, when sent via a first feed back coupling path and measuring at least one measurement of a signal level transmit on a second feed back coupling path from the transmitter unit via a receiver path;

a gain adjustment function for changing a gain parameter of a transceiver unit of the transceiver by a gain step;

wherein the signal level measurement unit (163) measures a gain adjusted feedback signal level of the second feedback coupling path;

a determining function for determining an effect of the gain step on the feedback signal level relative to said measurement reference value; and

a calibrating function for calibrating the gain step according to said relative effect of the gain step on the feedback signal.